Design Resource

Metal Icons of Thanjavur

The Art of Making Solid Images

by
Ketki Saxena
IDC, IIT Bombay

Source:
https://dsource.in/resource/metal-icons-thanjavur

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Introduction

Thanjavur district is a place of pilgrimage, where devotees of Lord Muruga trek to visit one of the six abodes of this Tamil deity. Image worship is a regular practice in Thanjavur and thus the art of making solid images flourished here. It is home to many sculptures that cast idols of metal, clay and stone, which has been their family tradition.

Swamimalai & Kubhakonam village in Thanjavur is famous for its traditional craft of making bronze icons or "panchaloha" in Chola style. The Satapathi who belong to the "Vishmakarma" community, which includes five sub-castes, practice this art: carpenters, blacksmiths, coppersmiths, goldsmiths and sculptors. Around 45-50 families of Stapathis, living in Swamimalai village, have been practicing metal casting since many generations. Their works are seen in many temples and museums in India, particularly in Tamil Nadu.

Currently, the 36th generation of Stapathi is pursuing this occupation and considers it as art, rather than industry, which needs spiritual commitment. Their lives have been dedicated to this craft.

Bronze icon.

Raw icon before polishing.

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Solid Shivalingam "Yoni" bronze structure made for a temple. It is 3 1/2 feet tall and weighs 750 Kg.

Icons made by my artists.

Mr. K. Mohanraj Sthapathy.

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History

In 1002 CE the Tamil emperor Raja Raja Chola (I) laid the foundation of the Big Temple also called 'Brihadeshvara Temple'. Veerachola Kunjaramalla Perunthagan was an esteemed architect and sculptor who built the Big Temple in Thanjavur, Thousands of other sculptors and architects were brought from Gingee in North Arcot to work with him.

In 1010CE after the completion of the Big Temple, the sculptors settled on the fertile banks of river Kaveri in Swamimalai. During this period many other temples were built in Gangaikonda Cholapuram and Swamimalai, including the Tharasuram Temple. The descendants of these sculptors have kept this traditional art alive.

In 1961, during the reign of the Chola King, Chembian Madheviar promoted the science of sculpture-making. Many idols were donated to temples during this period. This period was said to be the golden era of bronze casting.

Later, the industry began to wane but once again this artistry was given a new life by Kamala Pathi Chattopathyaya.

Today there are 40-45 families practicing this art form in Swamilmalai. They follow the same ancient technique even though there are many modern methods available today.

Since the past 25 years, Swamimalai has been the major exporter of bronze idols in foreign countries.

Old Sculptures in Tanjore.

Old Sculptures in Tanjore.

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Old Sculptures in Tanjore.

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People

Mr. K. Mohanraj Sthapathy M.A. (PhD.) - Department of Sculpture:
He is the second son of S. Karunanithi Sthapathy. He is also a very talented person in bronze idol work and Kavasam work. He is doing PhD (Iconography) at Tamil University, Thanjavur. He is the founder of Sirpa Kalakshetram in Swamimalai & Branches in Chennai & Malaysia. He is an expert in all Silpa Sastra text, iconography and iconomatric. He is the research coordinator for research scholars from all universities around the world. His name is recommended to UNESCO.

Mr. K. Kuberan Sthapathy:
He is the elder son of S. Karunanithi Sthapathy, he is a founder of Mohan fine arts. Swamimalai. He is the talented person of Kavasam's work Bronze idols and Natural Statues. He got many titles for his talented work.

Mr. K. Mohanraj Sthapathy.

Mr. K. Kuberan Sthapathy.

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Place

Thanjavur, formerly Tanjore, is an important center for South Indian religion, art and architecture. The Thanjavur District consists of Thanjavur itself along with Kumbakonam, Natchiarkoil and Swami Malai. The district is grouped into the Thanjavur craft cluster, and all crafts are sold in the city of Thanjavur. Thanjavur was ruled by the Chola Kings and was also the ancient capital of the Chola Kings.

The Big Temple, Brihadeeswara Temple and the other famous temples in this district are known all over the world. Big Temple is one of the architectural wonders of the world.

The district is also famous for a wide range of utility and decorative articles like Thanjavur bell-metal plates, bronze images, bowls, napkins and powder boxes etc., made of copper and bronze with inlaying and engraving work of motifs drawn from Hindu mythology done in silver etc., known as 'Thanjavur Swamy works". Chief centers of metalwork are in Kumbakonam, Natchiarkoil & Swami Malai.

Brihadeeswara Temple.

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Vijaya Raman Temple.

Lake View.

On the roads of Thanjavur.

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Process

Metal Icons are produced in what is traditionally known as the Madhu Chistam or cire perdu casting technique. A description of the technique is found in the ancient text of Manasara. The technique of icon casting as practiced by the Sthapathis of Swamimalai is the same. The tradition and technique have survived unchanged. The process can be divided into four different stages, which are as follows:

1. Modeling the image of wax.
2. Preparing a clay mould.
3. Encasing wax model in clay.
3. Making a metal cast from the clay mould.
4. Finishing and polishing.

Wax Modeling

Clay Mould

Composition of Pour

Finishing

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Wax Modeling

The wax used is beeswax called 'Thenmezhugu' in Tamil. Since pure wax cannot be used for modelling it is mixed with Kunkiliyan and a little amount of groundnut oil. This mixture is passed through cold water and then through the basin of Lukewarm water, which makes the wax flexible. This mixture is rolled up into rods and slabs and is known as "Mezhugu".

A Spatula, which is made of sandalwood, is used in the making of wax models. Sthapathis are the ones who make the wax model. The Sthapathi makes the rough outline in the wax model of the different parts of the body by hand and then works out the details with the help of a Spatula. He uses a hammer and a chisel to carve out details like the ornaments. The basic attitudes of the limbs, the torso and the face should be achieved in the wax model itself. It cannot be changed when it is transferred into a metal cast.

Wax.

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Material for wax model.

Shaping.

Body parts made of wax.

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Shaping.

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Wax modeling.

Half done wax model.

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Detailing.

Detailing.

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Molten wax used for details.

Detailing.

Compelete wax model.

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Half done wax model.

Shaping 1.

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Shaping 2.

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Clay Mould

When the wax model is completed, Sthapathi fixes the image on a wax base, which is attached to a wax rod ending in a funnel-shaped flange. This is a runner, which serves as an ingress for pouring molten metal and also as an ingress for draining out the molten wax. Through the wax rods, metal is poured into various parts of the image. This completes the preparation of the model. For making a clay mould out of a wax model a process called as "Mankattal" is performed. For the first three recasting, fine loam is ground into a paste with charred husk and cow dung. The Sthapathi covers the entire wax model with this paste, which for the first coating, is applied in a semi-solution form and is then allowed to dry. This process is repeated three-four times till a fine even layer of loam is spread all over the surface. This is a clay surface, which comes in contact with molten metal.

Encasing wax model in clay:
The model is encased in layers of coarser clay. Three successive layers of such clay are applied to the model, with each layer becoming coarser and bulkier than the one before. Each layer should be allowed to dry completely before coating the next layer. After the second coating, fine steel is wound around the entire piece. This wax orifice serves both as a runner and a vent.

Draining off the wax:
The Sthapathi, heats the mould over a drafted ground surface called 'Ulai', when the wax in the mould melts and runs out. The Sthapathi then collects the wax and weighs them to ascertain the quality of metal required for the operation.

The next step in the craft sequence is pouring.

Base.

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Clay mould.

Whole to pour out wax.

Moulds kept for drying.

Moulds.

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Bigger moulds copy.

Life size mould.

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Composition of Pour

The Metal:
Generally, an alloy of copper, brass and lead is used. Sometimes gold and silver are also added as per the demand of the customer. Before beginning the process, the experts take the weight of the wax model. Brass and copper should be taken ten times that of wax, silver twelve times; and gold sixteen times.

Copper by itself would not give a good colour, neither would it melt easily nor run smoothly. The addition of brass to copper gives better colour and lowers its melting point. But an alloy of brass and copper would not run easily and it would be difficult to work on it with a hammer and chisels. Therefore a little lead is added to the alloy. Lead smoothens the pour and imparts flexibility called "Nyppu" in Tamil to the metallic surface, rendering it easy to work on with a chisel and hammer. Normally the alloy contains copper, brass and leads in the ratio of 20:5:1.

Ceramic crucibles: Used for melting metals.

The furnace:
The furnace is a rectangular pit, 5 feet* 1 ½ feet and 2 feet deep, with a brick lining and brick flooring.

The fuel:
Coke for melting the metal. Dung cakes and firewood for heating the mould.

Prongs:
Used for lifting the crucibles out of the furnace and for pouring the Metal into the mould.

Prongs used to hold the mould.

Heating the metal.

Ceramic Crucible.

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Heating of the Mould:
The mould is heated till it becomes cherry red and is then buried in the earth up to the mouth of the orifice so that it remains in an upright position when hot liquid metal is poured into it. After the hot liquid metal is poured into the mould, the mould is then allowed to cool gradually. Then the binding wire is cut, the rods if any are removed and the mould is broken open when the metal image is revealed.

- Materials used for finishing:
- Hammers
- Chisels
- Files
- The seevuli

Fuel for heating the mould to remove wax.

Melting wax.

Heating the mould after wax removal.

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Mould.

Prongs used to hold the mould.

Ceramic Crucible.

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Prongs used to hold the crucible.

Heating the metal.

Pouring the metal in mould.

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Finishing

With tools and instruments, the craftsman removes the casting blemishes, smoothens the surface removes the bulges by filling and works out the details by engravement.

The process of polishing the icon is achieved by rubbing fine-grade emery paper on the entire surface and then rendering the images smooth with polishing tools. The image is then cleansed in the solution of tamarind in water, polished with brass polish and finally washed in a solution. This operation gives a high polish to the metal surface.

Statue removed from the mould.

Clearing.

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Clearing.

Cleaned statue

Polish.

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Polishing the base.

Detailing.

Base.

Final finish.

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This documentation for the resource was done by Ketki Saxena, at IDC, IIT Bombay.

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